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BESS Newsletter

Biosystems Engineering and Soil Science  
Publications and Other Works

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8-24-2009

# BESS 8/24/09

Department of Biosystems Engineering and Soil Sciences

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story

## TOP STORIES

[Funding Opportunities](#)

[BESS Welcome Back Social is August 27](#)

[Ag Day is September 26](#)

[BESS Video on YouTube!](#)

***Alumni  
please visit us  
at AG Day for a  
free gift!***

## FACULTY PROFILE

**DR. DANIEL YODER** has been invited to visit the Civil & Natural Resources Engineering Department (CNRE) at Canterbury University, Christchurch, New Zealand (<http://www.civil.canterbury.ac.nz/>). The CNRE Department successfully nominated Dr. Yoder for a Visiting Erskine Fellowship (<http://www.canterbury.ac.nz/erskine/>). Mr. Erskine, a former Canterbury University student, set up a fund enabling the University to invite international visitors to teach new classes. Dr. Yoder will be expected to teach a Soil Erosion Sediment Yield class and to lecture in several other classes during his 6 month visit next year.

Dr. Tom Cochrane, of the CNRE Department, traveled to BESS last summer for about a month. His visit was made possible by a Visiting Canterbury Fellowship, an Erskine program that allows Canterbury University faculty to travel to other institutions to broaden their knowledge base. The professors both work on erosion research, know each other from professional conferences and common contacts, and are very interested in learning from each other.

Dr. Yoder's current work is based on the RUSLE (Revised Universal Soil Loss Equation) project, a computer program that estimates soil erosion in order to do conservation planning. This sabbatical to New Zealand will allow him to stretch his knowledge by working with Dr. Cochrane and other researchers teaching and researching similar topics from different viewpoints. Dr. Yoder is looking forward to seeing new ideas, new ways of teaching, and perhaps finding new directions for research.

In particular, Dr. Yoder is interested in researching soil erosion on construction and mine reclamation sites, looking at the "armoring" effect, where the smaller soil particles erode away, leaving the surface covered by larger rocks that tend to protect the surface from erosion. He is interested in what the New Zealanders have been measuring and know about predicting how armoring happens, and what occurs when that armored soil layer is disturbed. Very little U.S. research has focused on this armoring effect, and New Zealand has a very different soil loss data set from what is available here.

Dr. Yoder's wife Thea, and Jonathan, their youngest son, will travel with Dr. Yoder to New Zealand. Jonathan will take his high school classes online, and both plan to travel a lot to see everything they can. Jonathan wants to hike the "Lord of the Rings" trail, and Thea may do some volunteer nursing. The other Yoder children hope to visit if their schedules permit.

As Dr. Yoder is an integral part of the Biosystems Engineering academic program, his absence is sure to be noticed. However, he has promised to keep in touch by email. We hope he has a wonderful time in New Zealand, and look forward to hearing about his adventure when he returns.

—Margaret Taylor



THE UNIVERSITY of  
**TENNESSEE**   
 INSTITUTE of  
 AGRICULTURE

Please submit items to Darla O'Neill [doneill1@utk.edu](mailto:doneill1@utk.edu)  
 Archived issues post to [departmental website](#).  
 To subscribe (or unsubscribe), email [doneill1@utk.edu](mailto:doneill1@utk.edu)

BETHE  
**BESS**  
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# Funding Opportunities

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## **NSF 08-569: Science, Technology, Engineering, and Mathematics Talent Expansion Program (STEP)**

The Directorate for Education and Human Resources, National Science Foundation, solicits applications for the Science, Technology, Engineering, and Mathematics Talent Expansion Program (STEP). STEP seeks to increase the number of students (U.S. citizens or permanent residents) receiving associate or baccalaureate degrees in established or emerging fields within science, technology, engineering, and mathematics (STEM). Type 1 proposals are solicited that provide for full implementation efforts at academic institutions. Type 2 proposals are solicited that support educational research projects on associate or baccalaureate degree attainment in STEM. For full information about this opportunity (NSF 08-569), please see <http://www.nsf.gov/pubs/2008/nsf08569/nsf08569.htm>

It is anticipated that at \$26M will be available to fund up to 15-20 Type 1 and 1-3 Type 2 awards. Cost sharing is **not** required. For further award information, please refer to the full solicitation.

### **Type 2 Projects**

Type 2 projects represent educational research on factors affecting associate or baccalaureate degree attainment in STEM. The results are expected to contribute to the knowledge base of scholarly research in education. These educational research studies should reflect explicit cognizance of the broad variety of institutions of higher education, and should address the unique challenges and opportunities posed by that variety. Studies that involve a single institution are discouraged unless the proposal provides compelling arguments that the results can be generalized to the larger community. The proposed research should be developed with the intent to provide the education community, including faculty, administrators, policymakers, and parents, with practical information to consider with respect to the impact of the factor(s) being studied within the educational system. Faculty in STEM disciplines are strongly encouraged to collaborate with appropriate experts in educational research when developing a Type 2 proposal. **There are no restrictions on the number of Type 2 proposals that an individual or organization may submit.**

**Type 2 Proposal Submission to Office of Research: 9/22/2009; Deadline for Submission to Agency: September 29, 2009.** For questions about this opportunity please contact James Lloyd ([jilloyd@utk.edu](mailto:jilloyd@utk.edu)).

For questions about the limited submission/internal competition process, please go to [here](#) or contact Jim Mazzouccolo ([jmazzoucc@utk.edu](mailto:jmazzoucc@utk.edu)).

## **2009 CSREES Grantsmanship Workshops and Writing Winning Grants Workshops**

### **Travel Grants are Available:**

#### ***Forwarded from Drs. Beyl, Brown, and Cross--***

*Please see the note below concerning two USDA CSREES Grantsmanship workshops which will be held in November, 2009. One workshop will be held November 10-11 in Kansas City, MO and the second workshop will be held November 16-17 in Washington, DC. The program will be the same for both workshops and is briefly described in the note below.*

*These workshops will provide an opportunity for faculty to learn more about CSREES Competitive Programs and to gain insight on the preparation of an effective proposal. We would like to sponsor travel grants of up to \$1,200 each for faculty to attend one of the workshops. Attendance at the workshop will be tied directly to the expectation of a proposal submitted to either one of the CSREES Program Areas or another federal, state or private granting opportunity. The major application of information presented at these workshops will be directed toward CSREES; however, the overall objective is to increase our competitiveness, so concepts learned from these workshops will help with other opportunities.*

***If you are interested in attending one of the workshops, please complete the attached document ([link here](#)) and return to one of us by September 1, 2009. Please limit the document length to two pages or less.***

*This is an excellent opportunity to learn more about CSREES programs and to increase our competitiveness and we hope that you will consider attending.*

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### **Re: GRANTSMANSHIP WORKSHOPS ANNOUNCEMENT**

#### **2009 CSREES Grantsmanship Workshops and Writing Winning Grants Workshops**

Grantsmanship workshops will be held again this fall to highlight the competitive programs in USDA-CSREES and to help grant writers improve their overall success. Both the CSREES Grantsmanship Workshop and the Writing Winning Grants Workshop have received outstanding reviews from across the country in past years. These workshops will be offered together in Washington, DC on Nov 16 - 17 and in Kansas City, MO on Nov 10 - 11.

**Washington DC Workshop: November 16 - 17, Crystal Gateway Marriott. Arlington, VA**

<http://www.cpe.vt.edu/usdagrant/index.html>

**Kansas City, MO Workshop: November 10 - 11, Embassy Suites, Kansas City, MO**

<http://muconf.missouri.edu/usda-csrees/index.html>

**USDA CSREES 2009 Grantsmanship and Writing Winning Grants Workshops**

**Travel Grants**

1. Which workshop would you like to attend:

November 10-11 in Kansas City, MO

November 16-17 in Washington, DC

2. General proposal title:

3. Brief description of proposed activity:

4. List potential collaborators and affiliation:

5. When and to which sponsor will the proposal be submitted:

The **Welcome Back Barbecue** will be Thursday, Aug 27 at the UT Trial Gardens. Volleyball/socializing will start at 4:30 pm, with food served at 6:30. RSVPs are being handled by Darla [doneill1@utk.edu](mailto:doneill1@utk.edu) (Inclement weather/backup - Hollingworth Auditorium).

## Don't Cancel That Class!

### When you have to be away from the University, call on

Mary Mahoney – Career Services Consultant for the College of Agricultural Sciences and Natural Resources or Emily Gray, Director of CASNR Student Services would love the opportunity to talk about careers for your students, resume and interview skills, or about our resources, services and upcoming events. **We're also happy to have you build in a visit from one of us to your class or to speak to student groups you may advise.** Whether it is for 10 minutes or the entire class, we can share how we can help students with their career and job search.

With advance notice, workshop and seminar options can be customized to your needs and may include:

- Career Services Overview
- HIRE-A-VOL (online job postings, resume submittal system, on-campus interviewing opportunities)
- Job Search Strategies
- How To Ace Your Interviews
- Resumes That Get Read
- Personal Branding – Marketing Yourself
- Graduate School
- Second Interview or Company Visit
  - Job Fair Tips and Tricks
  - Business and Dining Etiquette
  - Salary Negotiation
  - Comparing Job Offers – It's NOT Just The Money
  - Networking
  - Succeeding on the Job
  - Specialized Topics

#### Contact:

**Mary Mahoney at**  
**[mmahoney@utk.edu](mailto:mmahoney@utk.edu) or call 865-974-7791**

**Emily Gray at [ecgray@utk.edu](mailto:ecgray@utk.edu) or**  
**call 865-974-8502 with a date for the**  
**presentation and any particular topic or**  
**topics that you would like covered for your**  
**class or student group.**

**Thank you for helping us help your students!**

## ALUMNI:

Need help finding employment?  
Just click on the icon below to access  
Career Services



Do you know of a job opportunity with  
your company?  
Please click the icon below to post it.



## Welcome Back Students!

The **Welcome Back Barbecue** will be Thursday, Aug 27 at the UT Trial Gardens. Volleyball/socializing will start at 4:30 pm, with food served at 6:30. RSVPs are being handled by Darla [doneill1@utk.edu](mailto:doneill1@utk.edu) (Inclement weather/backup - Hollingworth Auditorium).



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### **Solicitation: EPA Science to Achieve Results (STAR) Fellowships for Graduate Environmental Study – due October 22**

There's good news for green building/ infrastructure from EPA's Graduate Fellowship program. The 2010 Solicitation is just out. Although it doesn't match NSF's \$67M, 1700 Fellowship program, EPA's \$4.5M is up to 120 Fellowships, compared with 32 in 2008 and 20 last year.

There's a major Science and Technology for Sustainability makeover, with separate categories for Green Engineering/Building/Chemistry/Materials; Energy; and Environmental Behavior and Decision Making.

See [http://epa.gov/ncer/rfa/2009/2009\\_star\\_gradfellow.html](http://epa.gov/ncer/rfa/2009/2009_star_gradfellow.html) for the solicitation. Note that the deadline for application is **October 22.**



# STUDENT NEWS

## **Student Internships Available with the Encyclopedia of Earth**

### **Applications Now Being Accepted for Fall 2009**

The award-winning Encyclopedia of Earth (EoE – [www.eoearth.org](http://www.eoearth.org)) is a free, fully searchable online encyclopedia about the Earth, its ecosystems and their relationship to society. The EoE seeks student interns to assist with posting articles and performing other tasks as needed. Internships are not paid. However, interns gain valuable education and experience, receive recognition on the EoE, and may receive course credit. Interns will work on their own at their home institutions, but will have regular contact with EoE authors, editors and staff based in Boston, Washington, D.C. and other locations.

**Eligibility:** Intern candidates must be enrolled as an upper level undergraduate or graduate student majoring in an environmental science subject or otherwise demonstrating a strong interest and knowledge of environmental issues. Each candidate must have a faculty sponsor complete a recommendation form (found at [www.eoearth.org/article/EoE\\_for\\_Educators](http://www.eoearth.org/article/EoE_for_Educators)) that evaluates the candidate's academic achievement and career potential and attests to his or her reliability and ability to work independently.

**Internship position description:** EoE Student Interns will add content to the EoE's wiki-based platform by posting articles provided by Content Partners or Content Sources and and/or creating content based on templates (such as articles on various species using sources provided). Depending on an individual's background, skill level and interest, he or she may develop original content in accordance with the guidelines of the Student Science Communication Project. ( [www.eoearth.org/article/Student\\_Science\\_Communication\\_Project](http://www.eoearth.org/article/Student_Science_Communication_Project) ) Training in using the wiki platform will be provided. Internships will be offered during the academic year, in most cases September through May.

Interns may be asked to work with EoE Editorial Board members and staff on special projects. All interns will participate upon request in conference calls with EoE Editorial Board members and authors on timely topics of interest. To receive course credit, interns will need to make arrangements in accordance with their home institution's internship policies.

**Criteria and selection:** Internship candidates must have completed course work and/or work experience in an environmental field; must have a demonstrated ability to work independently and meet deadlines; must be willing and able to work 8 to 10 hours per week during the course of the internship. Student interns must have regular and reliable internet access.

Candidates can apply by emailing a completed EoE Fall 2009 Internship Application Form found at: [http://www.eoearth.org/article/EoE\\_for\\_Educators](http://www.eoearth.org/article/EoE_for_Educators)

Interns will be selected by the EoE Editorial Board. Rolling deadlines for Fall 2009 internships are August 31, September 15 and September 30.

**Faculty sponsor:** Faculty sponsors will submit a recommendation for the intern candidate using the form provided at [www.eoearth.org/article/EoE\\_for\\_Educators](http://www.eoearth.org/article/EoE_for_Educators). EoE will work with the appropriate department to provide an intern with course credit. The faculty sponsor may be asked to serve as the on-campus contact or sponsor, as required, to meet the institution's internship requirements.

# EXTENSION NEWS

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## **EPA Biodiesel Workshop:**

**WHO SHOULD ATTEND:** Anyone interested in learning how to create biodiesel for your own use from waste oil/grease. In addition to saving money on fuel cost, this is a great opportunity to provide “green job” training in your area. The workshop will provide information for schools, local governments, and others about turning waste grease into biodiesel for use in your diesel fleets and equipment.

**WHEN:** Oct. 14, 2009 1 p.m. – 5 p.m. and Oct. 15, 2009 from 8 a.m. – 2 p.m.

**WHERE:** Sam Nunn Atlanta Federal Center, 2<sup>nd</sup> Floor Bridge Conference Center, 61 Forsyth St., SW, Atlanta, GA 30303

## **WORKSHOP TOPICS:**

- Technical Overview of the Biodiesel Production Process
- Discussions on Safety Concerns and Regulatory Requirements
- Setting Up a Successful Grease Collection Program
- Myths About Biodiesel Production and Use; Overcoming Barriers
- How Much Will It Cost? Will It Save Me Money In The Long-Run?
- Case Studies
- Exhibits From Vendors of Biodiesel Production Equipment

**REGISTRATION:** [www.epa.gov/region4/clean\\_energy/conferences.html](http://www.epa.gov/region4/clean_energy/conferences.html)

# UTIA NEWS

## **2009 - 2010 Professional Development Awards .**

Proposals for Professional Development and Research Awards to be used October 2009 through September 2010 may be submitted throughout the year, with awards announced beginning in October. Deadlines for proposals are **September 18, November 6, February 5, and April 9.**

The form is on the Graduate School webpage under UT Faculty and Staff Information. It is posted on the right under Other Issues. <http://gradschool.utk.edu/facultystaff.shtml> Please make sure your faculty use the 2009 – 2010 form when applying.

Grants of up to \$5,000 will be awarded to tenured and tenure-track faculty at the rank of assistant professor or above who have specific needs for funds to support research or creative projects. The funds may be used to purchase supplies needed for research, for travel to work in laboratories, libraries, or archives, or in a variety of other ways, so long as the outcome will be the professional development of the faculty member and the advancement of an identified research agenda. Faculty seeking funds to support travel to present papers or make other presentations should consult their departmental and college offices and the Office of Research. **Except in extraordinary circumstances, Professional Development funds will not be used in support of travel to meetings or for purposes of scholarly presentation. Nor will Professional Development funds be used for faculty or graduate student salaries.**

**ORIGINAL and FIVE copies of each proposal should be sent for review and evaluation by the department chair and dean of the college.** Deadlines for the college dean's office to forward the copies of the proposals to the Graduate School are **September 18, November 6, February 5, and April 9** . The applicant should submit proposals to the college dean's office at least one week prior to these dates to allow time for review and recommendation by the dean.

**Each proposal must include and be arranged in the following order :**

- (1) Cover sheet (Please use form provided.)
- (2) A narrative of no more than 1500 words describing the proposal, which must include a clear explanation of methodology and expected outcomes.
- (3) An itemized budget for the amount requested. Requests should be for amounts between \$1,000 and \$5,000. Be sure to indicate a projected timeline for use of the funds.
- (4) Any documentation of an invitation or host institution support.
- (5) Vita of the applicant. (Limit to 5 pages or fewer.)
- (6) Endorsement letters from both Department Head and Dean.

Priority will be given to applicants who have not received an award in the last two years.

If you have any questions, please feel free to contact me.

Gay Henegar, CPS, Administrative Coordinator I

Graduate School, 111 Student Services Building, Phone: 974-3694, Fax: 946-1090



## **Solicitation: EPA Science to Achieve Results (STAR) Fellowships for Graduate Environmental Study – due October 22**

There's good news for green building/ infrastructure from EPA's Graduate Fellowship program. The 2010 Solicitation is just out. Although it doesn't match NSF's \$67M, 1700 Fellowship program, EPA's \$4.5M is up to 120 Fellowships, compared with 32 in 2008 and 20 last year.

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See [http://epa.gov/ncer/rfa/2009/2009\\_star\\_gradfellow.html](http://epa.gov/ncer/rfa/2009/2009_star_gradfellow.html) for the solicitation. Note that the deadline for application is **October 22.**

from *Inside Higher Ed*:

### **Obama Remembers a B Grade He Received**

President Obama has a long memory about grades he didn't agree with. The president recently met with Roger Boesche, his politics professor when the future president was an undergraduate at Occidental College. Obama has praised Boesche many times, but took some time during their meeting to reiterate his complaint -- made decades ago -- about a B he received on a paper about European political thought, the *Los Angeles Times* reported. Obama and Boesche still disagree about the grade. Boesche told the *Times* that he didn't necessarily think Obama would someday be president, and that there is a lesson there for teachers at all levels: to **"realize that in any class, you could have a child, a young man or woman, who could do incredibly great things in the world. So teach as well as you can."**

From *SCIENCE* 9 Aug 2009....

Editorial

### **Future Energy Institutes**

The Landmark Energy Bill Wending its way through Congress this summer seeks to reduce emissions of carbon dioxide and other greenhouse gases and supports the development of alternative energies, including solar and wind power. It's a bill that aims to create both a "green" U.S. economy and a sustainable environment. At this critical juncture, America must take an equally sustainable view toward investing in the brainpower required to confront the world's complex energy issues.

Three-quarters of students in the United States attend the country's public colleges and universities, but very few of these institutions have vigorous education, research, and outreach programs focused on energy and climate change. Without a major restructuring of these powerful institutions, we forego the intellectual power and entrepreneurial spirit that they could tap to solve the energy and climate problems we face. We propose the creation of a public "energygrant university system" devoted to energy education and research. (Read the full editorial [here](#))

From *Chronicle of Higher Education*, July 24, 2009

### **When Computers Leave Classrooms, So Does Boredom**

By JEFFREY R. YOUNG

College leaders usually brag about their tech-filled "smart" classrooms, but a dean at Southern Methodist University is proudly removing computers from lecture halls. José A. Bowen, dean of the Meadows School of the Arts, has challenged his colleagues to "teach naked" — by which he means, *sans* machines. (Read the full article [here](#))



Paul G. Falkowski is a professor and director of the Rutgers Energy Institute, New Brunswick, NJ. E-mail: falko@marine.rutgers.edu



Robert M. Goodman is a professor and executive dean of the School of Environmental and Biological Sciences at Rutgers, the State University of New Jersey, New Brunswick, NJ. E-mail: execdean@aesop.rutgers.edu

## Future Energy Institutes

THE LANDMARK ENERGY BILL WENDING ITS WAY THROUGH CONGRESS THIS SUMMER SEEKS TO reduce emissions of carbon dioxide and other greenhouse gases and supports the development of alternative energies, including solar and wind power. It's a bill that aims to create both a "green" U.S. economy and a sustainable environment. At this critical juncture, America must take an equally sustainable view toward investing in the brainpower required to confront the world's complex energy issues.

Three-quarters of students in the United States attend the country's public colleges and universities, but very few of these institutions have vigorous education, research, and outreach programs focused on energy and climate change. Without a major restructuring of these powerful institutions, we forego the intellectual power and entrepreneurial spirit that they could tap to solve the energy and climate problems we face. We propose the creation of a public "energy-grant university system" devoted to energy education and research. This new system would be modeled on the U.S. land-grant university system established in 1862 in the midst of the Civil War to promote public education in agriculture and the mechanical arts. In the 20th century, the 78 land-grant institutions became a major source of intellectual wealth for the production of food, fiber, and basic scientific knowledge. Federal appropriations for this system in 2009 were nearly \$1 billion, multiplied many-fold by matching state appropriations.

Federal investments in an energy-grant university system could build on the existing infrastructure and framework embedded in the nation's comprehensive public research universities. In some cases, this could lead to expanding the mission of existing land-grant universities; in other cases, different comprehensive public research institutions or a consortium of such universities may be more appropriate. Support for at least one such institution in each state would provide, as it did for agriculture, new scientific knowledge and an extension service capable of advising every town on how best to reduce carbon footprints, increase energy efficiency, and promote sustainable economic growth.

To harness a vast untapped intellectual pool to drive the new green revolution, Congress should enact legislation that provides long-term funding through the Department of Energy to support research and extension services focused on energy issues at specific universities selected through a competitive process. A one-time investment of \$5 billion could fund the construction of new buildings and facilities, and a \$30 billion endowment would generate \$1.5 billion in federal funding per year to support programs on energy research. As with the land-grant program, federal funding should be contingent on co-funding by each state, and it should provide strong incentives for corporate support from the energy industry. The new energy-grant institutions would become impartial advisers to local, state, and national policy-makers, and they would engage the country in building strong, science-based programs that focus on energy and climate, as their predecessors focused on agriculture over a century ago.

Developing global sustainable and scalable energy resources today is as critical to the future as strategically investing in agriculture once was to securing the national food system. Congressional action on the energy bill signals a new level of commitment to U.S. energy security. The 4-year America's Energy Future study launched by the U.S. National Academies in 2007, and the recent Brookings Institution proposal of a complementary network of "discovery-innovation institutes" to move breakthrough inventions to the marketplace, demonstrate broad high-level support for finding sustainable solutions.

The energy-grant university proposal thrusts the intellectual might of public research institutions into the national conversation about solving global energy and climate challenges. Energy and climate change aren't simply environmental issues; they're also social, economic, and political problems. The next generation of leaders must confront these issues. It's up to colleges and universities to lay the foundation for their success.

— Paul G. Falkowski and Robert M. Goodman



<http://chronicle.com/free/v55/i42/42a00103.htm>

From the issue dated July 24, 2009

## COLLEGE 2.0

# When Computers Leave Classrooms, So Does Boredom

By JEFFREY R. YOUNG

College leaders usually brag about their tech-filled "smart" classrooms, but a dean at Southern Methodist University is proudly removing computers from lecture halls. José A. Bowen, dean of the Meadows School of the Arts, has challenged his colleagues to "teach naked" — by which he means, *sans* machines.

More than anything else, Mr. Bowen wants to discourage professors from using PowerPoint, because they often lean on the slide-display program as a crutch rather than using it as a creative tool. Class time should be reserved for discussion, he contends, especially now that students can download lectures online and find libraries of information on the Web. When students reflect on their college years later in life, they're going to remember challenging debates and talks with their professors. Lively interactions are what teaching is all about, he says, but those give-and-takes are discouraged by preset collections of slides.

He's not the only one raising questions about PowerPoint, which on many campuses is the state of the art in classroom teaching. A study published in the April issue of *British Educational Research Journal* found that 59 percent of students in a new survey reported that at least half of their lectures were boring, and that PowerPoint was one of the duller methods they saw. The survey consisted of 211 students at a university in England and was conducted by researchers at the University of Central Lancashire.

Students in the survey gave low marks not just to PowerPoint, but also to all kinds of computer-assisted classroom activities, even interactive exercises in computer labs. "The least boring teaching methods were found to be seminars, practical sessions, and group discussions," said the report. In other words, tech-free classrooms were the most engaging.

It's worth pointing out that PowerPoint presentations are generally better than many older classroom technologies, like slate chalkboards or overhead transparencies filled with hand-scrawled notes that students struggled to decipher. So computers have probably led to a slight improvement in teaching. But technology has hardly revolutionized the classroom experience for

most college students, despite millions of dollars in investment and early predictions that going digital would force professors to rethink their lectures and would herald a pedagogical renaissance.

Mr. Bowen is part of a group of college leaders who haven't given up on that dream of shaking up college instruction. Even though he is taking computers out of classrooms, he's not anti-technology. He just thinks they should be used differently — upending the traditional lecture model in the process.

Here's the kicker, though: The biggest resistance to Mr. Bowen's ideas has come from students, some of whom have grouched about taking a more active role during those 50-minute class periods. The lecture model is pretty comfortable for both students and professors, after all, and so fundamental change may be even harder than it initially seems, whether or not laptops, iPods, or other cool gadgets are thrown into the mix.

### **No Power in PowerPoint**

Mr. Bowen delivers his pitch about "teaching naked" with the energy and confidence of a seasoned performer, which makes sense when you learn he has been on stage as a jazz musician for some 30 years. The administrator sported a suit jacket over a dark T-shirt while giving a recent talk about his approach at a conference on "Emerging Technology Applications for Online Learning" put on by the Sloan Consortium, a nonprofit group that encourages technology use in education.

Although he made a philosophical argument about the best way to engage students, he grounded it in his own classroom experiences using podcasts and video games about jazz history that he helped produce. He did not use PowerPoint, but he did use his laptop to show off one of his games, which lets students pick famous jazz musicians to play in a fictional supergroup.

His philosophy is that the information delivery common in today's classroom lectures should be recorded and delivered to students as podcasts or online videos before class sessions. To make sure students tune in, he gives them short online multiple-choice tests.

So what's left to do during class once you've delivered your lecture? Introduce issues of debate within the discipline and get the students to weigh in based on the knowledge they have from those lecture podcasts, Mr. Bowen says. "If you say to a student, We have this problem in Mayan archaeology: We don't know if the answer is A or B. We used to all think it was A, now we think it's B. If the lecture is 'Here's the answer, it's B,' that's not very interesting. But if the student believes they can contribute, they're a whole lot more motivated to enter the discourse, and to enter the discipline."

In short, don't be boring.

To help encourage his teaching theories, when Mr. Bowen arrived at Southern Methodist three years ago to become dean of its arts school, he decided to make some structural changes in 20 or so main classrooms.

He says most of those classrooms had two computers (a Mac and a PC), a DVD player, a VCR, and a tape deck, along with "one of those complicated control panels where you need a Ph.D. to figure it out."

Last summer Mr. Bowen had most of that gear removed — though he left in projectors so that professors could plug in their laptops and do PowerPoint presentations, if they must. He also took out the old desks and replaced them with tables and chairs that professors could move around to allow students to work in groups more easily.

One reason for the changes was financial. The classroom computers were old and needed an upgrade when Mr. Bowen arrived, so ditching them instead saved money. Plus, the move cut support costs — the school was able to eliminate one staff position for a technician who responded to calls from professors about the classroom systems.

To encourage the kind of technology use Mr. Bowen did want, the school gave every professor a laptop and set up support so they could create their own podcasts and videos.

Some professors have complained about lugging their laptops to class, but others have jumped in with both feet.

One of the fans is Maria A. Dixon, an assistant professor of applied communication. She's made podcasts for her course on "Critical Scholarship in Communication" that feature interviews she recorded with experts in the field. "Before, I was always complaining that I never had time to go in-depth and talk with my students," she says. "Now they come in actually much more informed about a subject than they would have if they had been assigned a reading."

Kevin Heffernan, an associate professor in the school's division of cinema and television, has also created podcast lectures — essentially narrated PowerPoint slide shows — for students to watch before class. During class he shows movie clips from his laptop and has students discuss them based on the background lectures.

"I don't have to explain to them how film censorship in America changed in 1968" during his class session on *Midnight Cowboy*, says Mr. Heffernan. "They have that information from the online podcast."

## **Student Resistance**

Most students seem more attentive now, he says, though a few have been thrown off by the new system.

"Strangely enough, the people who are most resistant to this model are the students, who are used to being spoon-fed material that is going to be quote unquote on the test," says Mr. Heffernan. "Students have been socialized to view the educational process as essentially passive. The only way we're going to stop that is by radically refiguring the classroom in precisely the way José wants to do it."

Ms. Dixon has seen similar reactions. "If you've spent years not speaking, you're going to be ticked off" when you are asked to participate, she says. "We have to move past that resistance."

The same sequence of events occurred at Miami University, in Ohio, where Mr. Bowen worked before coming to Southern Methodist, and which pioneered some of the same teaching strategies.

"Initial response is generally negative until students start to understand and see how they learn under this new system," says Glenn Platt, a professor of marketing at Miami who has published academic papers about the approach, which he calls the "inverted classroom." "The first response from students is typically, 'I paid for a college education and you're not going to lecture?'"

Whatever griping students do about being asked to participate in class, though, it's better than the boredom induced by a PowerPoint lecture, say fans of the new approach.

Sandi Mann, the British researcher who led the recent study on student attitudes toward teaching, argues that boredom has serious implications in an educational setting. Students who say they are frequently bored are more likely to do poorly on tests, according to some studies.

But Mr. Bowen and Mr. Platt see the stakes as even higher. Now that so many colleges offer low-cost online alternatives to the traditional campus experience, and some universities give away videos of their best professors' lectures, colleges must make sure their in-person teaching really is superior to those alternatives.

"Schools need to be thinking this way," says Mr. Platt. "It's where they're going to prove they add value to being there in the room, and not being online."

Moving to PowerPoint from transparencies was the easy part of upgrading teaching for the digital age. Now that an entire infrastructure for instant online delivery is widely in place, all that's left is the hard part of changing what happens in the classroom, which might need to stay a low-tech zone to survive.

*College 2.0 explores how new technologies are changing colleges. Please send ideas to [jeff.young@chronicle.com](mailto:jeff.young@chronicle.com).*

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